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Ralf Sauer

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EXAMINER

SHUMATE, ANTHONY R

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

05/21/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,641	Applicant(s) SAUER ET AL.	
	Examiner ANTHONY SHUMATE	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Amendment filed 28 January 2009 has been entered and fully considered.
2. Claims 1 and 3-29 are pending, of which claims 1, 3, 8, 9 and 10 were amended. The amendments of claims 1, 3, 8, 9 and 10 are supported by the originally filed disclosure.
3. The previous drawing objection is withdrawn in light of Applicant's amendments to the specification.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3-5, 7-10 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by SCHULTINK (EP 960645A2) as evidenced by CHAND et al. (Structure and properties of polypropylene fibers during thermal bonding).

For instant **claim 1**, SCHULTINK teaches a nonwoven (spunbond) layer for a filter, in particular, for a vacuum cleaner bag, wherein at least one region of the nonwoven layer, the region having a predetermined thickness and a predetermined area, has an average pore size smaller than 50 μm at table 4 and figure 6.

Art Unit: 1797

Also for instant **claim 1**, SCHULTINK teaches fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layer at page 6 lines 5-20.

Additionally for instant **claim 1**, SCHULTINK teaches wherein the nonwoven layer is a spunbond or spunlace nonwoven layer, or a meltblown nonwoven layer at example 6 on page 33.

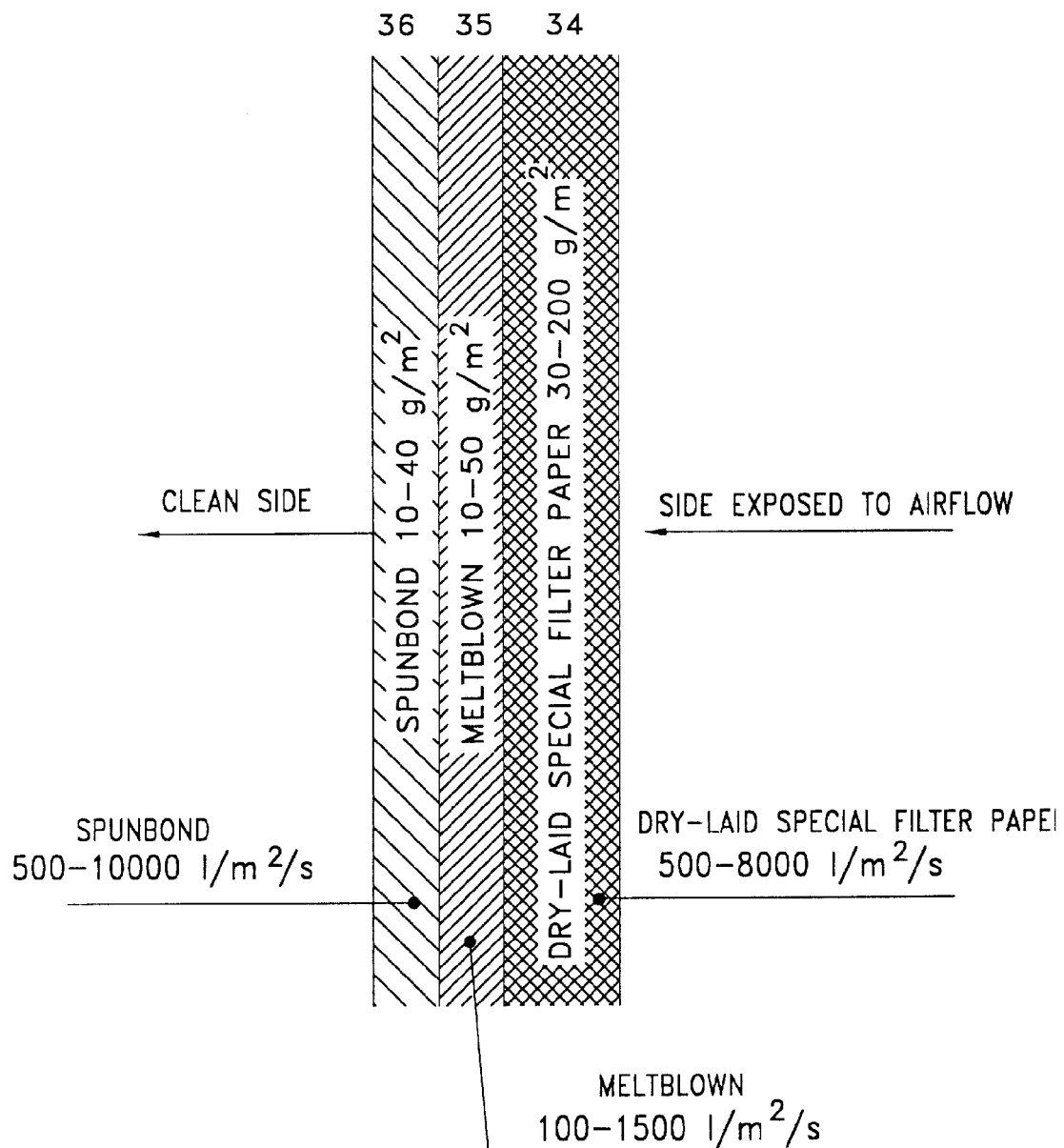


FIG. 6

For instant **claim 3**, SCHULTINK teaches g/m² at example 6 on page 33 a nonwoven layer having a basis weight between 10-50 g/m² which encompasses

Art Unit: 1797

the range 10 and 100 g/m² thereby anticipating the range. MPEP 2131.03 PART I AND II

For instant **claim 3**, SCHULTINK teaches wherein the spunbond fibers have an average fineness of 0.3-20 μm at table II. [CHAND et al. teaches filter grade fibers at table 1 which show a correlation between denier and fiber diameter. CHAND et al. teaches the particular fiber at table 1 with a 2.4 denier and 19.9 μm fiber diameter.] Since, 19.9 μm fiber diameter falls into the range of 0.3-20 μm by SCHULTINK, then 2.4 denier must fall in that range of fiber diameters. Therefore, the spunbond fiber average fineness of 2.4 denier anticipates the range of 0.6-12 denier. (MPEP 2131.03)

For instant **claim 3 and 4**, SCHULTINK teaches wherein the at least one region comprises an adhesive (hotmelt) at figure 8E.

For instant **claim 5**, SCHULTINK teaches wherein the adhesive is a hotmelt at page 3 lines 37-43.

For instant **claim 7**, SCHULTINK teaches 7 wherein the at least one region is a hot calendared region at page 7 lines 9-20.

For instant **claim 8**, SCHULTINK teaches at table 4 and example 6 on page 33, a first nonwoven layer wherein at least one region of the nonwoven

Art Unit: 1797

layer, the region having a predetermined thickness and a predetermined area, has an average pore size smaller than 50 μm , and a second nonwoven layer on top of the first nonwoven layer.

Also for instant **claim 8**, SCHULTINK teaches fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layer is inhibited at page 6 lines 5-20.

For instant **claim 8**, SCHULTINK teaches at page 3 lines 36-44, wherein an adhesive (hotmelt) is located at an interface between the first and second nonwoven layer such that fibers of the first or the second nonwoven layer or the first and the second nonwoven layer are bonded together. It is the examiner's position that the adhesive bonding of figure 8E results in an inhibition of movement of the bonded fibers relative to each other in a direction parallel to a surface of the first layer.

For instant **claim 9**, SCHULTINK teaches at figure 8E, wherein the second nonwoven layer is a meltblown nonwoven layer, and the adhesive is a hotmelt.

For instant **claim 13**, SCHULTINK teaches providing a first nonwoven layer, applying an adhesive to the first nonwoven layer, and providing a second nonwoven layer, wherein an adhesive is located at an interface between the first and second nonwoven layer such that fibers of the first or the second nonwoven

Art Unit: 1797

layer or the first and the second nonwoven layer are bonded together at figure 8E. It is the examiner's position that the adhesive bonding of figure 8E results in an inhibition of movement of the bonded fibers relative to each other in a direction parallel to a surface of the first layer.

For instant **claim 14**, SCHULTINK teaches applying pressure to obtain a bonding of the fibers at page 7 lines 2-10.

For instant **claim 10**, SCHULTINK teaches at figure 8H, treating at least one region of the nonwoven layer (via hotmelt). Also, SCHULTINK teaches at table 4 wherein at least one region of the nonwoven layer, the region having a predetermined thickness and a predetermined area, has an average pore size smaller than 50 μm . Also, SCHULTINK teaches at figure 8E, fibers being bonded together. It is the examiner's position that the adhesive bonding of figure 8E results in an inhibition of movement of the bonded fibers relative to each other in a direction parallel to a surface of the layer.

Additionally for instant **claim 10**, SCHULTINK teaches wherein the nonwoven layer is a spunbond layer at example 6 on page 33 and figure 8H.

For instant **claim 12**, SCHULTINK teaches at page 7 lines 1-27, wherein the treating step comprises the step of hot calendaring.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) in view of OHUE et al. (US 4,663,222 A).

For instant **claim 6**, OHUE et al. teaches at applying hotmelt adhesive at an amount of 10 g/m² which is within the claimed range of between 1 and 10 g/m². OHUE et al. teaches at column 28 lines 20-60 the technique of applying the hotmelt at an amount of 10 g/m² to a filter device with non-woven fabric which is analogues to the device of SCHULTINK which teaches at figure 8H and title the technique of applying the hotmelt to a filter device with non-woven fabric (spunbond). One of ordinary skill in the art would have recognized that applying the hotmelt at an amount of 10 g/m² would have yielded the predictable result of providing sufficient hotmelt for the bonding of layers of the filter together as described by OHUE et al. at column 28 lines 20-60. The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art.

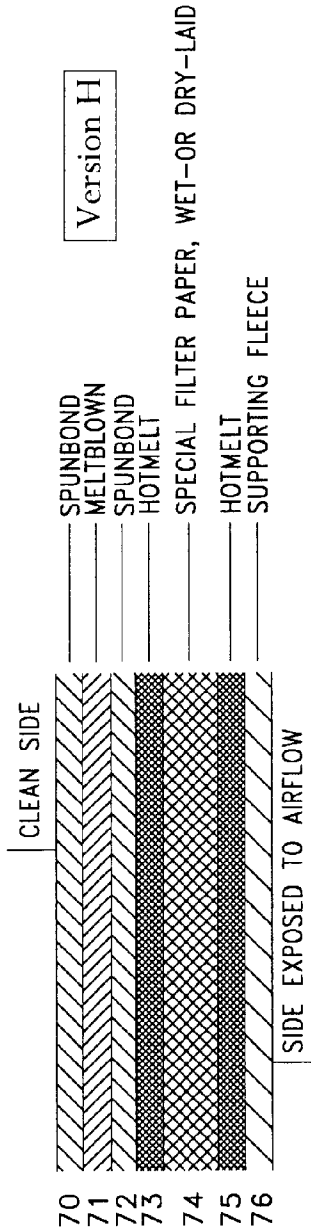


FIG. 8H

Art Unit: 1797

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) in view of FLUENT et al. (US 4,941,309 A).

For instant **claim 11**, SCHULTINK teaches at page 3 lines 37-43, applying hotmelt to obtain a bonding of the fibers. Additionally, FLUENT et al. teaches at column 8 line 40 – column 9 line 10, spraying of hotmelt, and applying pressure (force) to obtain a bonding of the fibers (corrugated cardboard). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combined the elements of spraying hot melt and applied pressure (force) to SCHULTINK application of hotmelt with no change in their respective functions to yield the predictable result of obtain a bonding of the fibers.

9. Claims 15-25, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2).

For instant **claim 15 and 22**, SCHULTINK teaches a filter structure characterized in that a surface or an interface of the filter structure is provided with a filter paper layer at figure 8H.

Also for instant **claim 15 and 22**, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a filter paper layer with a smaller surface area than the filter structure, since it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. MPEP 2144.04 PART II-A/B

For instant **claim 16**, SCHULTINK teaches wherein the filter paper layer is bonded (via hotmelt) to the filter structure at figure 8H.

For instant **claim 17**, SCHULTINK teaches at page 3 lines 37-43, wherein the filter paper layer is bonded using an adhesive wherein the adhesive is a hotmelt.

For instant **claim 18**, SCHULTINK teaches at figure 8H, wherein the filter paper layer is bonded (via hotmelt) to the filter structure at discrete region.

For instant **claim 19**, SCHULTINK teaches at figure 8H, wherein the filter structure comprises a nonwoven layer (spunbond).

For instant **claim 20**, SCHULTINK teaches wherein the filter structure comprises successively an supporting fleece, air-laid, a spunbond, a melt-blown, and a spunbond layer at figure 8H. It would be an obvious matter of simple substitution to substitute the supporting fleece layer with the spunbond layer in the filter structure by SCHULTINK. Figure 8H also shows that the supporting fleece and the spunbond materials both have the function of filtration materials. The claim would have been obvious because the substitution of one known

Art Unit: 1797

element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

For **instant claims 21, 28 and 29**, which are all dependent upon claim 15, SCHULTINK teaches at figure 6 wherein the filter paper layer has an air permeability of 500-8000 l/m²/s which is at least about 250 l/m²/s, 500 l/m²/s and 600 l/m²/s.

For instant **claim 23**, SCHULTINK teaches at figure 6, wherein the filter paper layer is provided at a region of a surface of the filter structure such that, in operation, the region is exposed directly to an airflow entering the bag.

For instant **claim 24**, SCHULTINK teaches at figure 8H, two portions of filter medium (74 and 76) wherein both portions are bonded (via hotmelt) together at an outer edge and wherein the first portion comprises an air inlet (side exposed to airflow) and the second portion comprises the filter paper layer at a region opposite to the air inlet.

For instant **claim 25**, SCHULTINK teaches at title and figure 8H, wherein the filter paper layer is provided at the inner surface of the bag.

Art Unit: 1797

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) in view of LUTZ et al. (Polypropylene: An A-Z Reference).

For instant **claim 26**, SCHULTINK does teach at page 3 lines 37-43 and figure 8H, wherein the adhesive is a hot melt. LUTZ et al. teaches at page 301 and 303, that pulverized polymer is an alternative to hot melt for adhesion of fibers (nonwoven material). One of ordinary skill in the pertinent art would considered it obvious to substitute the hot melt used by SCHULTINK for the equivalent pulverized polymer to yield the predictable result of adhering fibers (nonwoven material). *KSR Int'l Co. v. Teleflex Inc.* 550 U.S. ___, 82 USPQ2d 1385 (2007).

11. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) in view of FLUENT et al. (US 4,941,309 A) as applied to claim 11, and further in view of LUTZ et al. (Polypropylene: An A-Z Reference).

For instant **claim 27**, SCHULTINK does teach at page 3 lines 37-43 and figure 8H, wherein the adhesive is a hot melt. LUTZ et al. teaches at page 301 and 303, that pulverized polymer is an alternative to hot melt for adhesion of fibers (nonwoven material). One of ordinary skill in the pertinent art would considered it obvious to substitute the hot melt used by SCHULTINK for the equivalent pulverized polymer to yield the predictable result of adhering fibers (nonwoven material).

Response to Arguments

12. Applicant's arguments filed 28 January 2009 have been fully considered but they are not persuasive.

13. Applicant argues at section II and section III parts A and B that SCHULTINK fails to teach or suggest at least one region of a spunbond nonwoven layer having an average pore size smaller than 50 μm . The Examiner respectfully disagrees. SCHULTINK teaches at table 4 and figure 6 that layer 36 (spunbond layer) has a pore diameter of 17.67 μm which is smaller than 50 μm .

14. Applicant argues at section II and section III parts A and B that SCHULTINK fails to teach or suggest the spunbond layer comprises fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layer is inhibited. The Examiner respectfully disagrees. SCHULTINK teaches at page 6 lines 5-20 spunbond fibers. In an analysis of the phrase "spunbond fibers" (i.e. fibers bond together) the inherent property is fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layer is inhibited.

15. Applicant argues at section III parts C, D and E that SCHULTINK fails to teach or suggest a filter paper layer. The Examiner respectfully disagrees. The Applicant states

Art Unit: 1797

at section III part C that SCHULTINK teaches wet-laid or dry-laid high capacity paper.

Therefore, clearly SCHULTINK teaches a filter paper layer.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY SHUMATE whose telephone number is (571)270-5546. The examiner can normally be reached on M-Th 9-4pm.

Art Unit: 1797

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A.S./

Examiner Art Unit 1797

/Jason M. Greene/

Primary Examiner, Art Unit 1797